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SSi's 9100 Redundant Probe System

USER'S MANUAL

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Safety:

- *Safety Symbols* - Various symbols are used on the instrument, they have the following meaning:

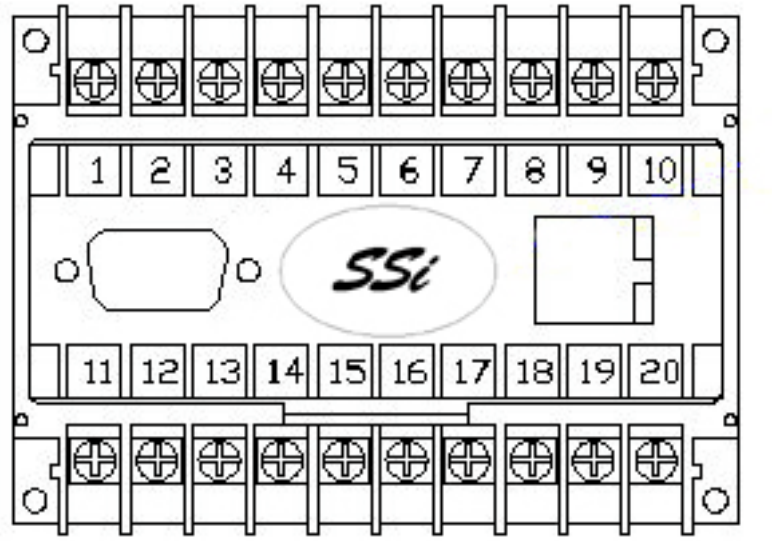
Caution (refer to the accompanying documents)

- *Grounding of the temperature sensor shield* - In some installations it is common practice to replace the temperature sensor while the controller is still powered up. Under these conditions, as additional protection against electric shock, we recommend that the shield of the temperature sensor be grounded. Do not rely on grounding through the framework of the machine.

- *Installation requirements for EMC* - To ensure compliance with the European EMC directive certain installation precautions are necessary. When using relay or triac outputs it may be necessary to fit a filter suitable for suppressing the emissions. The filter requirements will depend on the type of load. For typical applications we recommend Schaffner FN321 or FN612.

- *Routing of wires* - To minimize the pick-up of electrical noise, the wiring for low voltage DC and particularly the sensor input should be routed away from high-current power cables. Where it is impractical to do this, use shielded cables with the shield grounded at one end.

Wiring Terminals



eSPP Wiring Terminations

1 – 24 VDC (COM)
2 – 24 VDC (+)
3 – RS485 RT (+)
4 – RS485 RT (-)
5 – SLAVE RS485 (+)
6 – SLAVE RS485 (-)
7 – OUTPUT COMMON
8 – OUTPUT 1
9 - OUTPUT 2
10 – OUTPUT 3
11 – OPTIONAL
12 – OPTIONAL
13 - OPTIONAL
14 -
15 -
16 -
17 – PROBE mV INPUT 1 (-)
18 – PROBE mV INPUT 1 (+)
19 - PROBE mV INPUT 2 (-)
20 – PROBE mV INPUT 2 (+)

About the Model 9100 – RPS:

The Model 9100-RPS is specifically designed to read two SSi Gold Probes, installed in the same furnace. The Model 9100-RPS controller, a 24 VDC power supply and two 24 VDC relays are mounted and wired on a piece of DIN rail for easy mounting by the customer. Two other components included with the Model 9100-RPS are the operator interface and the cable connecting the operator interface to the Model 9100-RPS.

Electrical Installation:

The Model 9100 – RPS comes mounted on a DIN rail, pre-wired and tested. AC power needs to be connected to the 24VAC power supply. See the "Typical Electrical Drawing" on the next to last page of this manual for other required connections.

Model 9100-RPS Function:

The Model 9100-RPS reads a signal from each of the two oxygen probes located in the furnace. Depending on the 9100-RPS' configuration, it selects whichever millivolt reading it has been configured to select and retransmits this millivolt output to your atmosphere controller.

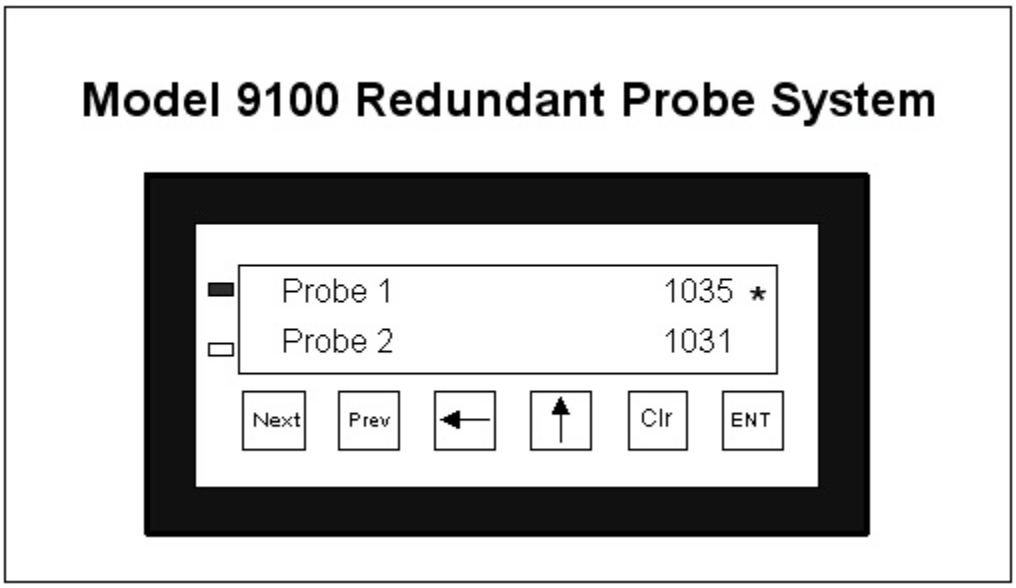
The probe millivolt "deviation band" and the "alarm delay" time are set using the operator interface. When connected per the electrical drawing, the Model 9100-RPS's default configuration is set to retransmit the millivolt signal from the probe with the highest millivolt output. As time passes and if/or when the other probes millivolt output becomes greater (dependent on the deviation band), the Model 9110 RPS will switch the output from one probe to the other and send the "new" higher (or lower depending on your configuration) millivolt signal to the atmosphere controller. The deviation band must be exceeded for the retransmit to occur.

The " asterisks (*) " on the operator interface display indicates which probe's millivolts are being used by the furnace atmosphere controller. When the Model 9100-RPS switches the output from one probe to the other it indicates a "deviation band" alarm condition, flashing an "A" on the operator interface. The "A" continues to flash until the probe's output is back within the "deviation band".

The operator can manually select the probe that he wishes to be used in the carbon calculation. If this feature is used the 9100 RPS will use the operator selected probe, and NOT switch from one probe to the other automatically.

The "deviation alarm" is disabled if both probe's millivolts drop below 950. This should eliminate the nuisance alarm when the furnace is loaded and the temperature drops.

Using the operator interface shown below you can configure the Model 9100-RPS per these instructions



Configuration

With the display set as shown in the picture below, pressing the **ENT** key takes you to the second menu in the Model 9100 "Deviation Band Menu". Pressing the **NEXT** key again takes you to the "Alarm Delay Menu". Pressing the **NEXT** key again takes you to the "Probe (Prb) Select Mode". Pressing the **NEXT** key again takes you to the "Manual Prb Select Menu".

Configuration – Deviation Band

From the "Deviation Band Menu", pressing the **ENT** key on the operator interface displays the number of millivolts that the "deviation band" alarm is set for (default is 10mV's). After pressing the **ENT** key, press the **NEXT** key to display the number of minutes that the "alarm" is delayed before the Model 9100 RPS switches the probe output from one probe to the other probe.

Pressing the **ENT** key while looking at the deviation band allows the operator to change the deviation band. The first digit will flash. If you want to make the deviation less than 10 millivolts (mV's), simply press the **UP** arrow key until the number you wish to enter is displayed... Press the **ENT** key. This enters the number for the deviation band that you have selected.

If the number is going to be 10 mV's or higher press the **UP** arrow key until the "1" is displayed and then press the "horizontal" arrow key one time to move the "1" into the "tens" position. Then press the "UP" arrow key until the number that you wish to select is displayed.... Between "10 – 19", pressing the **ENT** key when you are satisfied with your selection.

Configuration – Alarm Delay

When in the **ALARM DELAY** mode you can press the **ENT** key to change the number of minutes for which the alarm can be delayed.

Configuration – Probe (Prb) Select Mode

To select the probe that you want to use to establish the % Carbon on your carbon controller you can do one of two things. One, you can install a three-position selector switch as shown on the electrical drawings (the left-position is Probe 1, the middle position is AUTO, and the right-position is Probe 2), or two, you press the **ENT** key. After pressing the ENT key, Press the **NEXT** key to move to the "PRB Select Mode". No. 1 represents **AUTO** mode, and No. 2 represents **MANUAL**. If the controller is in **AUTO** you can change to **MANUAL** by pressing the UP arrow key until the No. 2 appears in the window with **MANUAL** beside it. If the controller is in the **MANUAL** mode, press the CLR key and the number will change to a "1" and the word **AUTO** will appear next to the number 1.

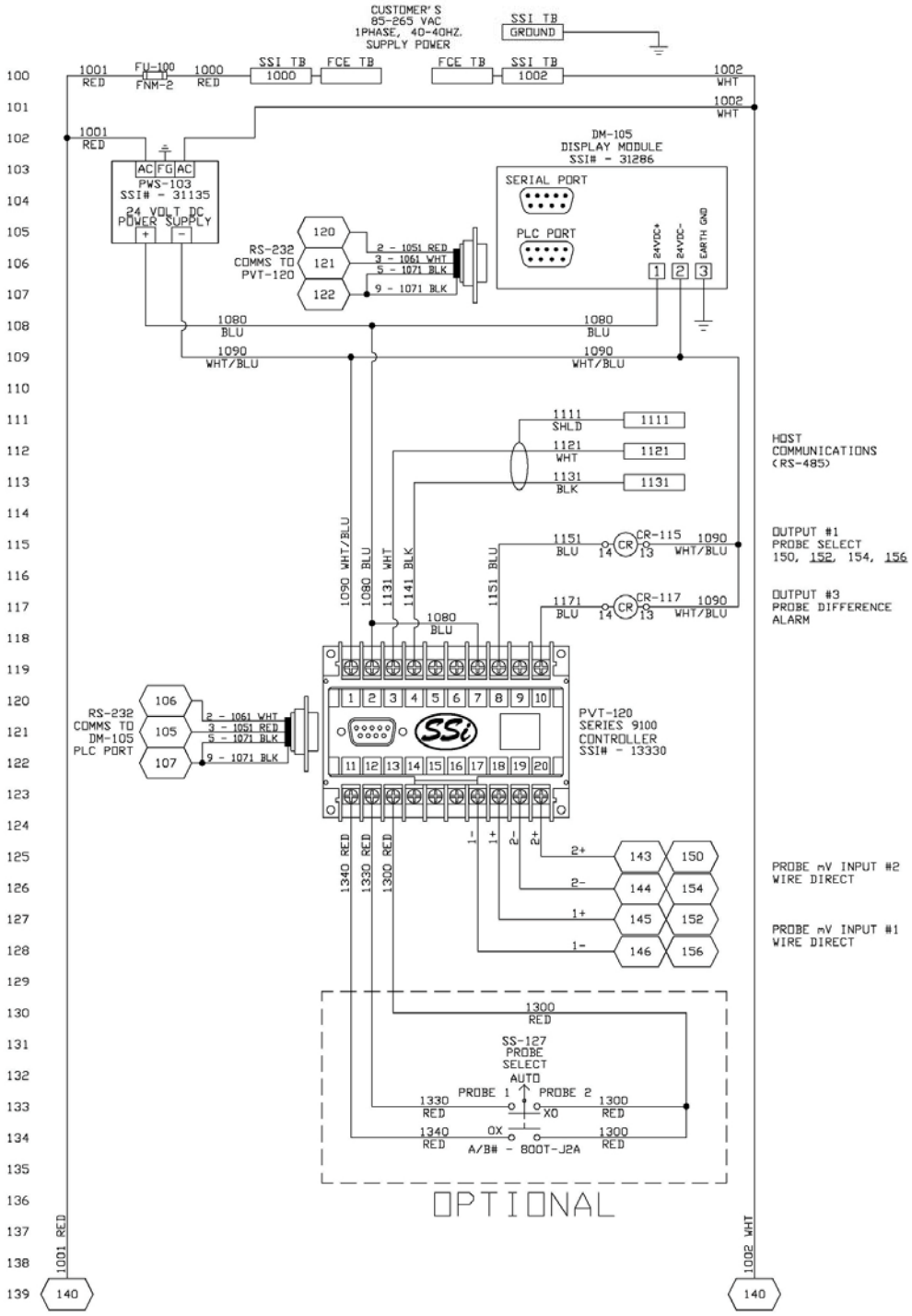
When in the **AUTO** mode, pressing the **ENT** key allows you to choose the probe millivolts automatically, selecting either probe with the "highest mV's" or the probe with the "lowest mV's".

When in the **MANUAL** mode you press the **ENT** key to manually select either Probe 1 or Probe 2. On the operator display the probe millivolts on the first line is Probe 1, and the probe beneath Probe 1 is designated Probe 2.

Configuration – Manual Probe (Prb) Select

When this mode is selected from the menu options, the probe selected will override the selected probe based on the automatic settings. If in **AUTO** mode, the system will continue to select the configured probe when the deviation band is exceeded. To run continuously in **MANUAL** mode, you must first select the **MANUAL** mode from the Probe Select Mode described above.

Typical Electrical Drawing:



Spare Parts:

Description	Part Number
Power Supply	37135
Gold Probes	Check the current part number of your SSi Probe

Revision History:

Rev.	Description	Date
-	Initial Release	06-09-2005
A	Manual / Auto Probe Selection Mode	06/22/2005
B	Revised to include new “menu” selections	08/05/2005